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10/829,301	04/22/2004	So-young Kim	Q80903	7203

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER
RAO, ANAND SHASHIKANT

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>22 April 2004</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-18</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-18</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All b) ☐ Some * c) ☐ None of:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>4/22/04</u>
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Specification

1.   The specification has not been checked to the extent necessary to determine the presence

of all possible minor errors. Applicant's cooperation is requested in correcting any errors of

which applicant may become aware in the specification.

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

2.   Claim 18 is rejected under 35 U.S.C. 101 because they are directed towards nonstatutory

subject matter.

    A). It is noted that computer programs claimed as computer listings, instructions, or codes

are just the descriptions, expressions, of the program are not "physical things". They have neither

computer components nor statutory processes, as they are not "acts" being performed. In contrast,

a claimed "...computer readable medium encoded with a computer program... that when executed

causes the computer to execute..." is a computer element which defines structural and function

interrelationships between the computer program and the rest of the computer, and is statutory,

Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035, Interim Guidelines, Annex IV (Section a).

    Corrections to the claims, and supporting specification are required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United
> States before the invention thereof by the applicant for patent, or on an international application by another who
> has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention
> thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA

35 U.S.C. 102(e)).

3.   Claims 1-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Sun et al.,

(hereinafter referred to as "Sun").

Sun discloses a prediction mode determination method (Sun: figures 9-15), comprising:

(a) grouping a plurality of predetermined prediction modes into a predetermined number of

groups (Sun: column 2, lines 30-40); (b) selecting one prediction mode for each of the groups,

respectively, performing predictions for a predetermined block in the selected prediction modes,

and calculating prediction errors in the selected prediction modes (Sun: column 5, lines 1-17);

and (c) performing predictions for the predetermined block in other prediction modes belonging
to a group including a prediction mode with a smallest prediction error among the calculated
prediction errors, calculating prediction errors in the other prediction modes, and deciding a
prediction mode according to the calculated prediction errors in the other prediction modes (Sun:
column 6, lines 45-65), as in claim 1.

Regarding claim 2, Sun discloses wherein in step (a), the plurality of prediction modes
are partitioned into the predetermined number of groups according to different directions of
predictions (Sun: column 4, lines 25-35), as in the claim.

Regarding claim 3, Sun discloses wherein in step (a), according to different directions of
predictions, a prediction mode corresponding to a vertical direction and adjacent prediction
modes corresponding to directions adjacent to the vertical direction are grouped into a first group
(Sun: column 4, lines 60-65), a prediction mode corresponding to a horizontal direction and
adjacent prediction modes corresponding to directions adjacent to the horizontal direction are
grouped into a second group (Sun: column 4, lines 50-60), and remaining prediction modes
corresponding to remaining directions are grouped into a third group (Sun: column 4, lines 45-
59), as in the claim.

Regarding claim 4, Sun discloses wherein in step (b), the selected prediction modes are a
prediction mode corresponding to a vertical direction, a prediction mode corresponding to a
horizontal direction (Sun: column 4, lines 55-65), and a prediction mode (DC prediction mode)
corresponding to a current location (Sun: column 5, lines 20-40), as in the claim.

Regarding claims 5-6, Sun discloses wherein step (c) comprises: (c1) performing
predictions for the predetermined block in the other prediction modes belonging to the group

including the prediction mode with the smallest prediction error and calculating prediction errors

in the other prediction modes (Sun: column 7, lines 35-45); and (c2) comparing the calculated

prediction errors in the other prediction modes to each other and outputting a prediction mode

with a smallest prediction error according to a result of comparing the calculated prediction

errors in the other prediction modes to each other (Sun: column 8, lines 10-40), as in the claims.

Regarding claim 7, Sun discloses wherein the predetermined block is a luminance block

(Sun: column 1, lines 35-40: MPEG-2 blocks are both luminance and chrominance in a

macroblock), as in the claim.

Regarding claim 8, Sun discloses wherein the prediction error is a residue value obtained

by subtracting an original pixel value of the predetermined block from a predicted pixel value of

the predetermined block, and is calculated using a predetermined cost function (Sun: column 2,

lines 30-40: correlation values), as in the claim.

Sun discloses prediction mode determination method (Sun: figures 9-15), comprising: (a)

performing predictions for a predetermined block in a vertical prediction mode corresponding to

a vertical direction (Sun: column 4, lines 60-65), a horizontal prediction mode corresponding to a

horizontal direction (Sun: column 4, lines 50-60), and a DC prediction mode corresponding to a

current location (Sun: column 5, lines 20-30), and calculating prediction errors in the respective

modes (Sun: column 2, lines 30-40); and prediction errors in (b) performing predictions for the

predetermined block in prediction modes corresponding to prediction directions (Sun: column

25-35) adjacent to a prediction direction of a prediction mode with a smallest prediction error

among the calculated prediction errors in the respective modes (Sun: column 7, lines 35-45),

calculating prediction errors in the prediction modes corresponding to prediction directions

adjacent to a prediction direction of a prediction mode with the smallest prediction error (Sun:

column 4, lines 45-59) among the calculated prediction errors in the respective modes (Sun:

column 6, lines 45-55), and selecting a prediction mode with the smallest prediction error among

the calculated prediction errors in the prediction modes corresponding to prediction directions

adjacent to a prediction direction of a prediction mode with the smallest prediction error among

the calculated prediction errors in the respective modes (Sun: column 8, lines 50-61), as in claim

9.

     Regarding claim 10, Sun discloses wherein after step (b), further comprising: (c)

performing predictions for the predetermined block in prediction modes corresponding to

prediction directions adjacent to a prediction direction of the selected prediction mode (Sun:

column 7, lines 50-65), calculating prediction errors in the prediction modes corresponding to

prediction directions adjacent to the prediction direction of the selected prediction mode (Sun:

column 8, lines 10-25), and selecting a prediction mode with a smallest prediction error among

the calculated prediction errors in the prediction modes corresponding to prediction directions

adjacent to the prediction direction of the selected prediction mode (Sun: column 8, lines 30-45),

as in the claim.

     Regarding claim 11, Sun discloses wherein the prediction mode is a 4x4 intra luminance

prediction mode (Sun: column 2, lines 45-50), as in the claim.

     Sun discloses a prediction mode determination apparatus (Sun: column 13, lines 65-67)

comprising: a prediction unit, which performs prediction for a predetermined block in a

predetermined prediction mode, and outputs a prediction sample (Sun: column 2, lines 30-40); a

prediction error calculator which calculates a prediction error for the prediction sample (Sun:

column 5, lines 1-17); and a prediction error comparator, which compares prediction errors

received from the prediction error calculator to each other, selects a prediction mode with a

smallest prediction error according to a result of the compared prediction errors, and outputs the

selected prediction mode. (Sun: column 6, lines 45-65), as in claim 12.

Regarding claim 13, Sun discloses wherein the prediction unit selects one prediction

mode for each of a plurality of groups partitioned according to different directions of predictions

(Sun: column 4, lines 25-35), as in the claim.

Regarding claim 14, Sun discloses wherein the prediction unit priority- performs

predictions for the predetermined block in a vertical prediction mode corresponding to a vertical

direction (Sun: column 4, lines 60-65), a horizontal prediction mode corresponding to a

horizontal direction (Sun: column 4, lines 50-60), and a DC prediction mode corresponding to a

current location (Sun: column 5, lines 20-40), as in the claim.

Regarding claim 15, Sun discloses wherein the prediction error calculator calculates the

prediction error (residue value) by subtracting an original pixel value of the predetermined block

from a pixel value of the prediction sample, using a predetermined cost function (Sun: column 2,

lines 30-40: correlation values), as in the claim.

Regarding claim 16, Sun discloses wherein the prediction unit receives prediction mode

information with a smallest prediction error from the prediction error comparator (Sun: column

7, lines 50-60), and performs secondary prediction for the predetermined block in prediction

modes corresponding to prediction directions adjacent to a prediction direction according to the

received prediction mode information (Sun: column 8, lines 10-61), as in the claim.

Regarding claim 17, Sun discloses wherein the block is a luminance block (Sun: column 1, lines 35-40: MPEG-2 blocks are both luminance and chrominance in a macroblock), as in the claim.

Sun discloses a computer readable medium having embodied thereon a computer program for a prediction mode determination method (Sun: column 14, lines 25-30), comprising: (a) partitioning a plurality of predetermined prediction modes into a predetermined number of groups (Sun: column 2, lines 30-40); (b) selecting one prediction mode for each of the groups, respectively, performing predictions for a predetermined block in the selected prediction modes, and calculating prediction errors in the selected prediction modes (Sun: column 5, lines 1-17); and (c) performing predictions for the predetermined block in other prediction modes belonging to a group including a prediction mode with a smallest prediction error among the calculated prediction errors, calculating prediction errors in the other prediction modes, and deciding a prediction mode according to the calculated prediction errors in the other prediction modes (Sun: column 6, lines 45-65), as in claim 18.

Conclusion

4.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wang discloses a macroblock level adaptive frame/field coding for digital video content.

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

　　　　If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

　　　　Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

　　　　　　　　　　　　　　　　　　　　　　Andy S. Rao
　　　　　　　　　　　　　　　　　　　　　　Primary Examiner
　　　　　　　　　　　　　　　　　　　　　　Art Unit 2621

asr
/Andy S. Rao/
Primary Examiner, Art Unit 2621
March 30, 2008